

Date: Thursday, 12/13/2007 2:39:10 PM  
 User: Kim Johnston

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: STEM
Job Number	: 36332A		
Estimate Number	: 10394		
P.O. Number	:	Part Number	: D29681
This Issue	: 12/13/2007 S.O. No. :	Drawing Number	: D2968
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: 1 / Type : MACHINED PARTS	Drawing Revision	: C
Previous Run	: 33287A	Material	:
Written By	:	Due Date	: 1/15/2008
Checked & Approved By	: <u>07.12.13</u>	Qty:	50 Um: Each
Comment	: Est: C 03.04.11 Reformat; Incorporated D2968-1/-5 KJ/RF est D 07.08.23 rev C dwg EC		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	M4130NR0750	4130 steel rod .750"
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Comment: Qty.: 0.4550 f(s)/Unit Total : 22.7483 f(s)  
 Material: AISI 4130 Ø 3/4 " Bar  
 (M4130N-R0.750) Batch: M109458  
 Identify AS D2968-1

20 07/12/17 HA 07/12/18

2.0	HARDINGE	HARDINGE CNC LATHE SMALL
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Comment: HARDINGE CNC LATHE SMALL  
 1-Turn Blank as per Folio FA047 and Dwg D2968  
 2-Deburr, no sharp edges

20 07/12/17 B.A.F.M. 07/12/18

3.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
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(50)

Comment: INSPECT PARTS AS THEY COME OFF MACHINE

20 07/12/20 HA/F.M. 07/12/18

4.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
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Comment: HAAS CNC VERTICAL MACHINING #1  
 1- Machine as per Folio FA047 and Dwg D2968  
 2- Deburr

08/02/08 (50)

5.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
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Comment: INSPECT PARTS AS THEY COME OFF MACHINE

08/02/08 (50)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: PD Date: 08/02/08  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 12/13/2007 2:39:10 PM  
User: Kim Johnston

# Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: STEM

Job Number: 36332A

Part Number: D29681

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

SC 04.02.08

7.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: 396

8/2/8 SP (50X)

8.0

QC21

FINAL INSPECTION/W/O RELEASE



(50)

Comment: FINAL INSPECTION/W/O RELEASE

2008/02/08

Job Completion



mi 2008/2/08 (50)  
u

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	36332A
Description: Stem		Part Number:	D2968-1
Inspection Dwg: D2968 Rev: C		Page 1 of 1	

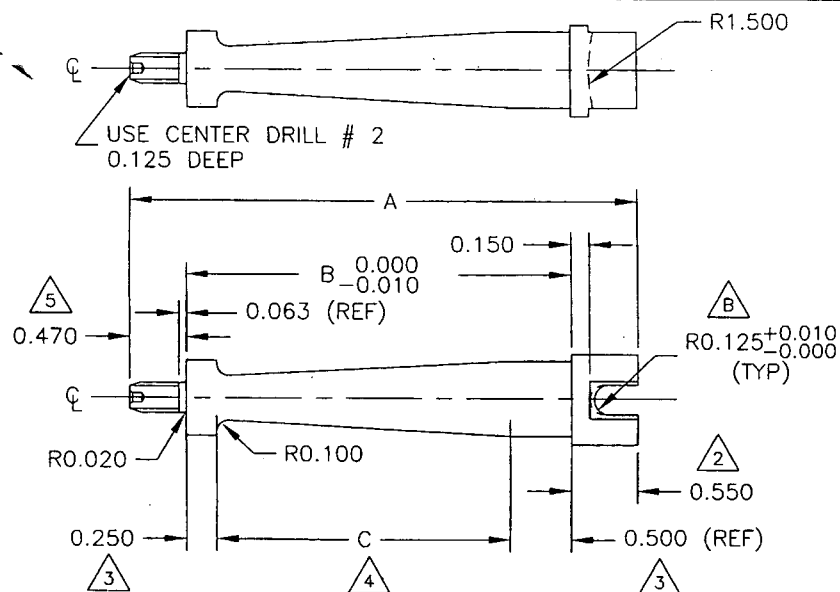
### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
5.040	+/-0.010	5.046	✓			
4.020	+0.000/-0.010	4.015	✓			
3.270	+/-0.010	3.264	✓			
0.470	+/-0.010	.468	✓			
0.250	+/-0.010	.2555	✓			
0.550	+/-0.010	.5510	✓			
Ø0.750	+/-0.010	Ø.748	✓			
Ø0.625	+/-0.010	Ø.625	✓			
Ø0.363	+/-0.010	Ø.365	✓			
0.250	+0.010/-0.000	.251	✓			
0.625	+/-0.010	.626	✓			
0.150	+/-0.010	.149	✓			
1/4-28 Major dia	0.243 - 0.249	Ø.248	✓			
R0.125	+0.010/-0.000	R0.125	✓			
MOW	0.261 - 0.267	0.2655	✓			

Measured by:	B.A. / [Signature]	Audited by:	S.D. / [Signature]	Prototype Approval:	N/A
Date:	07/12/18	Date:	07/12/18	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.02.25	New Issue P/O D2968-041	KJ/RF	
B	05.05.26	Dimensions added	KJ/JLM	
C	07.03.21	Dimensions updated	KJ/JLM	
D	07.09.06	Dwg Rev updated	KJ/JLM [Signature]	[Signature]



PART NUMBER -	A	B	C
D2968-1	5.040	4.020	3.270
D2968-3	4.200	3.180	2.430

#### D2968-1/-3 STEM

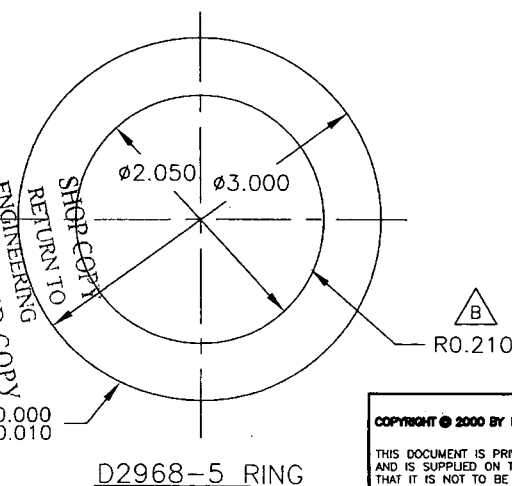
#### D2968-1 AND D2968-3 STEM:

- 1) MATERIAL: AISI 4130N ROUND BAR PER MIL-S-6758  
OR AMS 6348/6370/6528  
(REF DART SPEC M4130N-RX.XXX)
- 2)  $\phi 0.750$  O.D.
- 3)  $\phi 0.625$  O.D.
- 4) MACHINE UNIFORM TAPER FROM  $\phi 0.363$  O.D.  
TO  $\phi 0.625$  O.D.
- 5) 1/4-28 UNF THREAD WITH 0.063 GRIP
- 6) MACHINE ALL INSIDE EDGES WITH A 0.010 RADIUS  
UNLESS OTHERWISE INDICATED
- 7) ALL DIMENSIONS ARE IN INCHES
- 8) TOLERANCES ARE PER DART QSI 018 UNLESS  
OTHERWISE NOTED

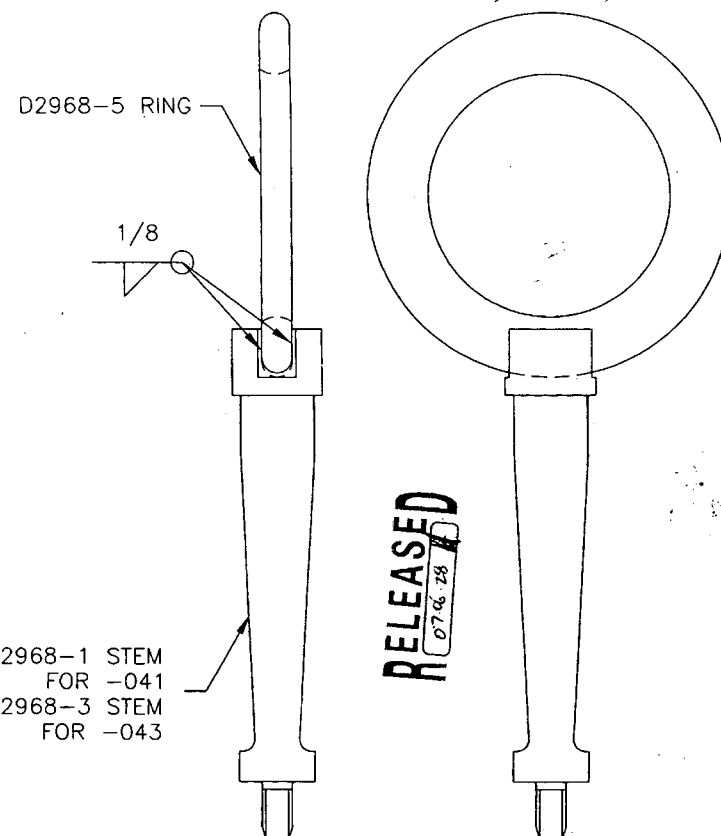
#### D2968-5 RING:

- 9) MATERIAL: AISI 4130N TUBING PER MIL-T-6736  
OR AMS 6360/6361/6362/6371/6373/6374  
(REF DART SPEC M4130NT3000W500)
- 10) ALL DIMENSIONS ARE IN INCHES
- 11) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

UNCONTROLLED COPY  
 ENGINEERING  
 RETURN TO  
 SHOP COPY  
 NO. 26332A  
 WORK ORDER  
 SUBJECT TO AMENDMENT  
 WITHOUT NOTICE



D2968-5 RING



USE D2968-1 STEM  
 FOR -041  
 USE D2968-3 STEM  
 FOR -043

#### D2968-041 AND D2968-043 TOW RING:

- 12) WELD PER QSI 004 ON ALL EDGES BETWEEN STEM AND RING
- 13) HEAT TREAT TO MIN ULTIMATE TENSILE STRENGTH OF 125 KSI
- 14) FINISH: CAD PLATE ENTIRE ASSEMBLY PER  
QQ-P-416F CLASS I TYPE II  
POWDER COAT WHITE (REF 4.3.5.2) PER DART  
QSI 005 4.3 (EXCEPT THREADS)

C	07.04.17	2.050 WAS 2.000, UPDATE NOTES	I
B	00.05.31	R0.125 AND R0.210 WERE 0.060 x 45°	
A	00.03.07	NEW ISSUE	
DESIGN	<i>[Signature]</i>	DRAWN BY	<i>[Signature]</i>
CHECKED	<i>[Signature]</i>	APPROVED	<i>[Signature]</i>
DATE	07.04.17	DRAWING NO.	D2968
		TITLE	TOW RING
		SCALE	1:1

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HAWKESBURY, ONTARIO, CANADA

REV. C  
SHEET 1 OF 1